2017 National Geospatial Data Asset (NGDA) Theme Summary Report
Water - Oceans and Coasts Theme

Overview:

This report aggregates information related to the National Geospatial Data Asset (NGDA) Theme in the title above. NGDA Themes serve as the management units for collections of related NGDA Datasets that benefit from coordinated development and management across the NGDA national geospatial portfolio. These NGDA Datasets are considered national capital assets and must meet the criteria outlined in OMB Circular A-16 *Supplemental Guidance*. The guidance directs the Federal Geographic Data Committee (FGDC) through cooperation with Federal agencies to implement and use a Portfolio management approach for managing NGDA Themes and their associated NGDA Datasets both within and across NGDA Themes. This ensures NGDA Themes are managed by officially designated agencies, on behalf of all users. In addition, each NGDA Theme has a Strategic Plan that establishes goals and objectives and an associated Implementation Plan that describes the activities the Theme will undertake to address them. Unless otherwise noted, this report covers the period from the baseline Lifecycle Maturity Assessment (LMA) in 2015 to August 2017.

NGDA Theme Details:

Theme: Water - Oceans and Coasts Theme

Theme Definition: Features and characteristics of salt water bodies (i.e. tides, tidal waves, coastal information, reefs) and features and characteristics that represent the intersection of the land with the water surface (i.e. shorelines), the lines from which the territorial sea and other maritime zones are measured (i.e. baseline maritime) and lands covered by water at any stage of the tide (i.e. Outer Continental Shelf), as distinguished from tidelands, which are attached to the mainland or an island and cover and uncover with the tide.

Theme Lead Agency: U.S. Department of Commerce, National Oceanic and Atmospheric Administration

Theme Executive Champion:

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Total Associated NGDA Datasets: 16

The following NGDA Datasets are associated with this NGDA Theme. This list includes an embedded hyperlink to the NGDA metadata found on Data.gov. Please note if the metadata has been updated and re-harvested after publication of this report, the link may no longer be valid. The NGDA Dataset may be searched for manually in Data.gov or GeoPlatform.gov by using the official NGDA Name (in Table 1 below) and including the keyword "NGDA" to narrow the results.

NGDA Name and Associated Data.gov Link	Agency Acronym
Continental Shelf Boundary - Gulf of Mexico Region NAD27	DOI-BOEM
Maritime Limits and Boundaries of the United States of America	DOC-NOAA
NOAA Coastal Mapping Shoreline Products	DOC-NOAA
NOAA Electronic Navigational Charts (ENC)	DOC-NOAA
NOAA Raster Navigational Charts (RNC)	DOC-NOAA
OCSLA Sec. 8(g) Revenue Zone Boundary - Alaska Region NAD83	DOI-BOEM
OCSLA Sec. 8(g) Revenue Zone Boundary - Atlantic Region NAD83	DOI-BOEM
OCSLA Sec. 8(g) Revenue Zone Boundary - Gulf of Mexico Region NAD27	DOI-BOEM
OCSLA Sec. 8(g) Revenue Zone Boundary - Pacific Region - West Coast NAD 83	DOI-BOEM
ODIN: Observational Data Interactive Navigation, an interactive map of all CO-OPS active stations	DOC-NOAA
Outer Continental Shelf Submerged Lands Act Boundary - Alaska Region NAD83	DOI-BOEM
Outer Continental Shelf Submerged Lands Act Boundary - Atlantic Region NAD83	DOI-BOEM
Outer Continental Shelf Submerged Lands Act Boundary - Gulf of Mexico Region NAD27	DOI-BOEM
Outer Continental Shelf Submerged Lands Act Boundary - Pacific Region - West Coast NAD 83	DOI-BOEM
Sea Levels Online: Sea Level Variations of the United States Derived from National Water Level Observation Network Stations	DOC-NOAA
U.S. Marine Protected Areas Boundaries: MPA Inventory	DOC-NOAA

Table 1: Theme NGDA Datasets.

Lifecycle Maturity Assessment (LMA) Overview

Introduction

The Geospatial Data Lifecycle has seven stages that agencies should use when developing, managing and reporting on NGDA Datasets. These stages and their associated benchmarks[1] are defined in the A-16 *Supplemental Guidance* Stages of the Geospatial Data Lifecycle (see Figure 1). Reporting on the status of each NGDA Dataset is an OMB requirement, and assessing the developmental maturity of the NGDA provides managers the ability to support NGDA Datasets in a more universal and transparent manner. The FGDC NGDA lifecycle maturity assessment is based on responses made by Dataset Managers to questions associated with benchmarks in each lifecycle stage. Each stage has a range of benchmark activities, from no activity to significant activity, which provide the interpretation of maturity for each benchmark within a stage and cumulatively for each stage. The cumulative level of activity across each stage and for all stages determines the maturity of the each NGDA Dataset based on a Maturity Matrix (see Table 2) and the response metrics from How to Calculate Maturity. In this report, the LMA results for all the associated NGDA Datasets are aggregated through an average calculation at the Theme level. Additional information can be found at the GeoPlatform.gov 2017 Lifecycle Maturity Assessment (LMA) Community web page. Individual NGDA Dataset Reports can be found at FGDC.gov.

Figure 1. The Geospatial Data Lifecycle

[1] Benchmarks are detailed in Table B1 of the Stages of the Geospatial Data Lifecycle document.

2017 Lifecycle Maturity Assessment Maturity Matrix

The Lifecycle Maturity Assessment Maturity Matrix provides descriptions of the maturity characteristics of benchmark activities for each stage within a dataset that result in a maturity level of 0-5, with no activity being level zero and optimized being level five, applied consistently across all lifecycle stages.

Maturity Level	Maturity Characteristics for All Lifecycle Stages
Optimized; Established Level = 5	Dataset meets virtually all business needs of all users. The dataset is considered authoritative by owners and secondary users. It is curated across all stages of the approved lifecycle. Future needs are defined for both the primary owner and secondary users on a regular basis and resources for addressing both current and future business requirements are available.
Mature; Consistent Level = 4	Dataset meets all the business needs of the primary owner and most of the secondary users. The dataset is curated and used as an authoritative resource by the primary owner and secondary users. Future needs are being identified and steps are planned to address these. All stages are supported and reviewed on a recurring basis. The dataset is well managed in relation to the approved lifecycle.
Managed; Predictable Level = 3	Dataset meets a significant number of the business needs of the primary owner and is widely used by secondary users. Benchmark activities are occurring in at least four of the approved lifecycle stages. Management practices in relation to the approved lifecycle is moderate but consistent. Dataset is integrating changing business requirements in lifecycle stages impacting overall maturity.
Transition; Transformation Level = 2	Dataset meets business needs of the primary owner and has moderate use by secondary users. Benchmark activities are occurring in at least three stages. Efforts to integrate funding, include partners, and obtain data are not supported in a sustained manner. Management practices in relation to the stages of the approved lifecycle is limited.
Planned; Initial Development Level = 1	Dataset in initial planning or limited in meeting business needs of the primary owner. Benchmark activities in the approved lifecycle are just starting to consider secondary uses, Partners/stakeholders involvement is being defined and developed to support additional dataset uses. Dataset development is in a very early stage. Minimal or limited management against the benchmarks in the approved lifecycle.
No Activity Level = 0	Dataset not developed or meets project/local business needs of the primary owner. Secondary, additional uses, or partners/stakeholders were not considered. Dataset is not recognized as authoritative data or is part of a similar dataset. Not managed to any of the benchmarks in the approved lifecycle.

Table 2: 2017 Maturity Matrix.

2017 LMA Maturity Results for the Theme

Based on the LMA results, maturity averages are calculated for all NGDA Datasets associated with the Theme to illustrate a roll-up of the general questions for all stages, and each lifecycle stage as shown in Table 3 below. This table provides a high-level view of the aggregated maturity of the NGDA Datasets in the Theme.

Maturity Categories	Maturity Level
Roll-up NGDA Maturity	**4 - Mature; Consistent**
General Questions for All Stages	4 - Mature; Consistent
Stage 1: Plan/Define	3 - Managed; Predictable
Stage 2: Inventory/Evaluate	5 - Optimized; Established
Stage 3: Obtain	5 - Optimized; Established
Stage 4: Access	5 - Optimized; Established
Stage 5: Maintain	3 - Managed; Predictable
Stage 6: Use/Evaluate	4 - Mature; Consistent
Stage 7: Archive	2 - Transition; Transformation

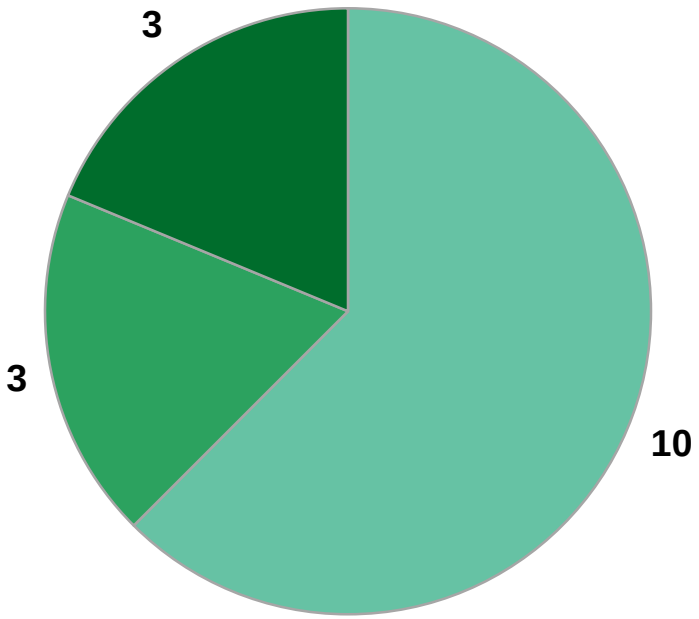
Table 3: 2017 Maturity Results.

LMA Process Changes between 2015 and 2017

In 2015, a baseline assessment of NGDA was performed for each of the datasets in the federal geospatial portfolio. Information related to the 2015 baseline LMA can be found at 2015 NGDA Lifecycle Maturity Assessment, which also includes a link to the 2015 Reports. A follow-up analysis of the 2015 LMA baseline process and its results identified ways to improve the LMA workflow, increase efficiency as well as decrease the reporting burden. Several recommendations were identified and implemented in 2017, which included improvements to normalize the responses in 2017. A secondary effect of improvements to normalization is that results from 2017 and 2015 are not directly comparable. These changes, and their impacts, are detailed in the webpage: Temporal Changes in Lifecycle Maturity Assessment (LMA) Maturity and Results Comparisons.

Aggregated Maturity Level for Theme NGDA Datasets

The pie graph below shows the number of NGDA Datasets within each maturity level for this Theme.



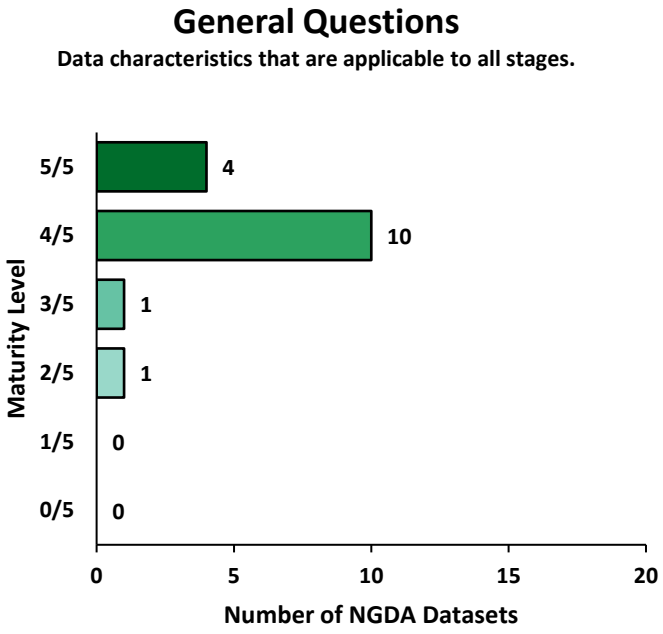
Graph 1: Aggregated NGDA Dataset Maturity Level Counts in the Theme.

Key for NGDA Dataset Maturity Level:

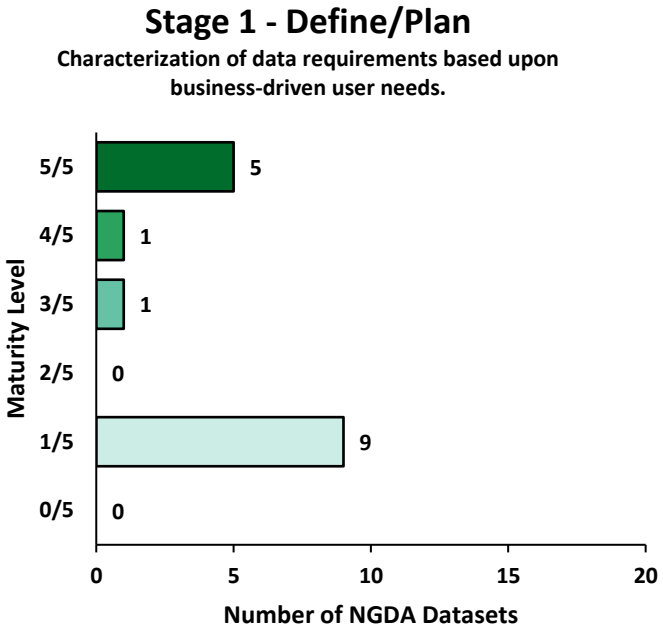
Optimized; Established Level = 5 5/5	Mature; Consistent Level = 4 4/5	Managed; Predictable Level = 3 3/5	Transition; Transformation Level = 2 2/5	Planned; Initial Development Level = 1 1/5	No Activity Level = 0 0/5

Stage-based Maturity Levels for Theme NGDA Datasets

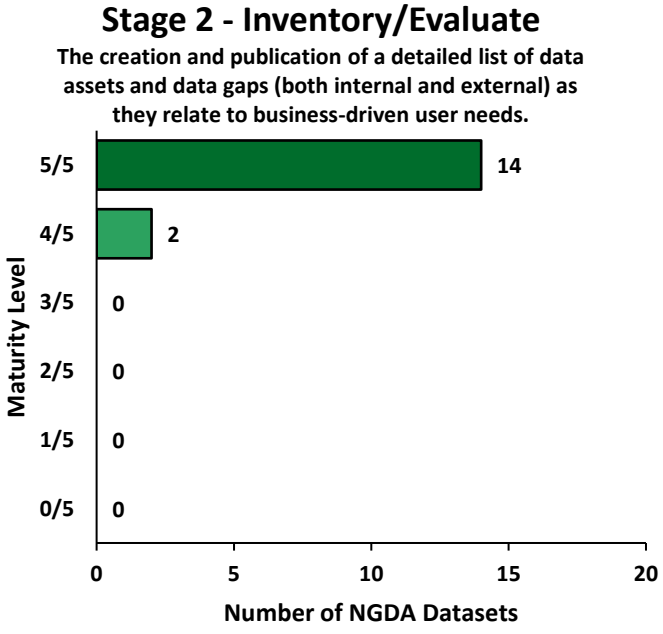
The following graphs provide information about the NGDA Dataset maturity level counts for each lifecycle stage within the Theme. This information visualizes the NGDA Datasets according to the maturity matrix, which can show potential opportunities or challenges within a Theme.



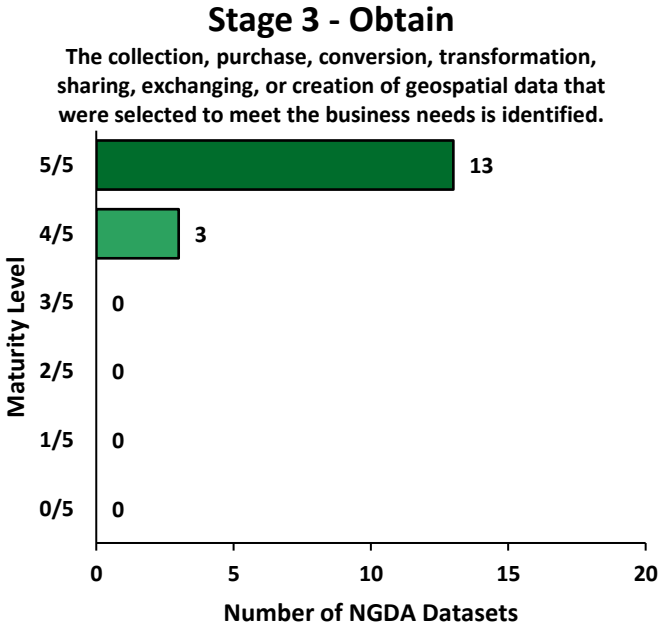
Graph 2: General Questions Stage NGDA Maturity Level Counts.



Graph 3: Define/Plan Stage NGDA Maturity Level Counts.



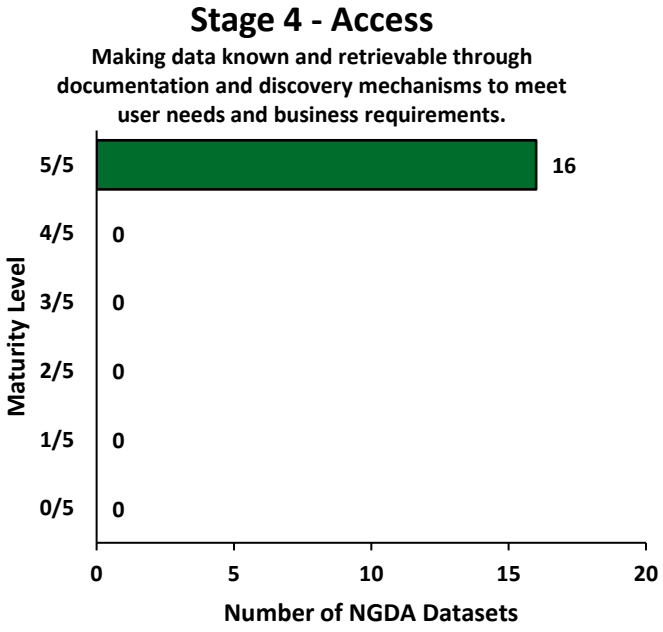
Graph 4: Inventory/Evaluate Stage NGDA Maturity Level Counts.



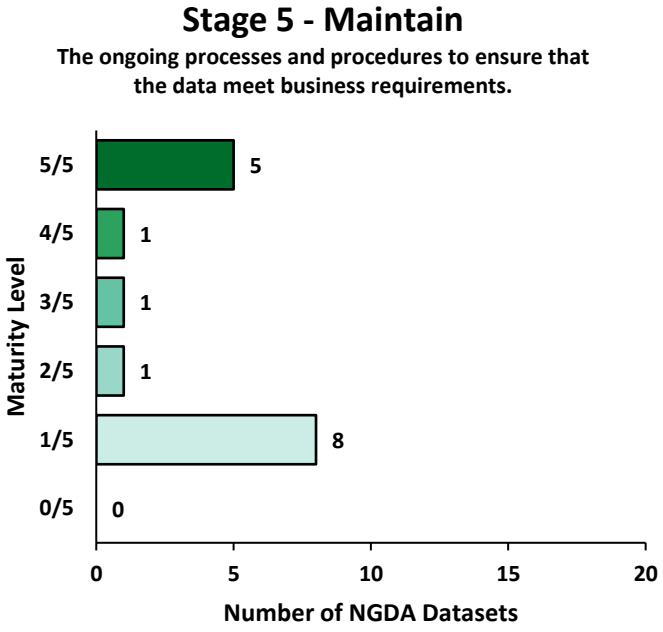
Graph 5: Obtain Stage NGDA Maturity Level Counts.

Key for NGDA Dataset Maturity Level:

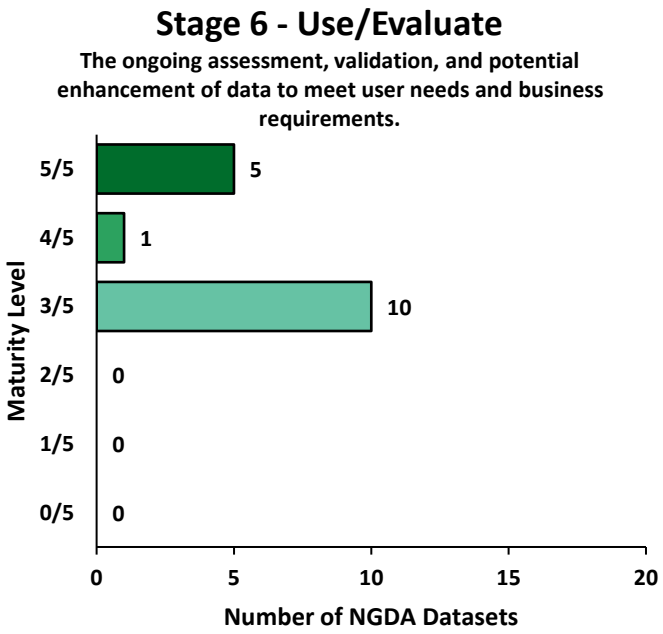
Optimized; Established Level = 5 5/5	Mature; Consistent Level = 4 4/5	Managed; Predictable Level = 3 3/5	Transition; Transformation Level = 2 2/5	Planned; Initial Development Level = 1 1/5	No Activity Level = 0 0/5



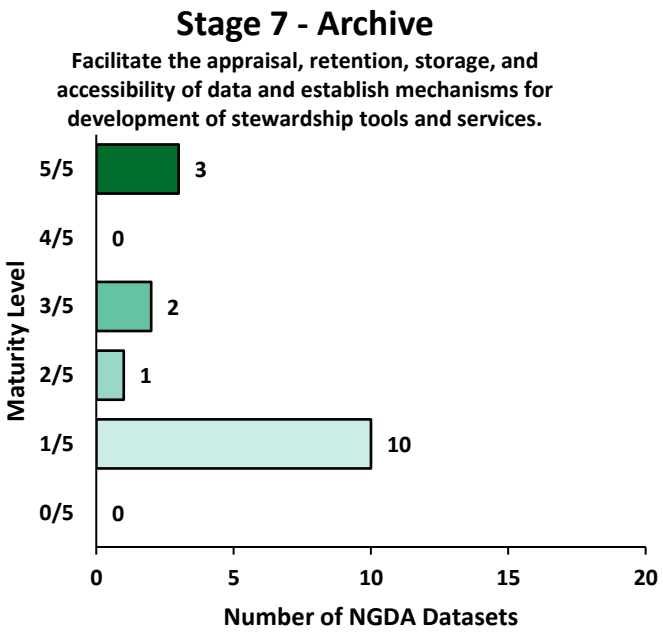
Graph 6: Access Stage NGDA Maturity Level Counts.



Graph 7: Maintain Stage NGDA Maturity Level Counts.



Graph 8: Use/Evaluate Stage NGDA Maturity Level Counts.



Graph 9: Archive Stage NGDA Maturity Level Counts.

Key for NGDA Dataset Maturity Level:

Optimized; Established Level = 5 5/5	Mature; Consistent Level = 4 4/5	Managed; Predictable Level = 3 3/5	Transition; Transformation Level = 2 2/5	Planned; Initial Development Level = 1 1/5	No Activity Level = 0 0/5

Theme NGDA Dataset Maturity Levels for Selected LMA Questions

In this section, several LMA questions have been identified that provide additional insight into Theme NGDA Dataset maturity levels including funding, obtaining data (acquisition), and quality control/quality assurance. By separating these questions from a particular stage, more information can be discerned about the NGDA Datasets within a Theme and help identify activities that are doing well or where some additional attention may be needed. For each of these maturity questions, if the "0/5" (No process exists) option was selected, additional detail was requested. Optional information could also be provided for the supplemental justification questions under the "Other" response option.

Funding

Question 1 in the LMA asks about a process to obtain funding for all lifecycle stages such as planning, development, maintenance, access, and archiving of an NGDA Dataset. The question also provides additional detail about primary and secondary funding sources.

Question 1		General Questions
Is there a recurring process to obtain funding for all lifecycle stages of this dataset?		
Maturity Level	**Number of Responses**	**Response Options**
5/5	14	Funding support is part of agency budget on a recurring basis, funding is consistent and tied to business requirements, and supports all lifecycle stages
4/5	0	Funding is currently adequate and consistent but tied to business requirements whose appropriations are not directed to support all lifecycle stages of the NGDA
3/5	0	Funding support exists but is not adequate to meet known requirements, most lifecycle stages are supported
2/5	1	Funding is planned at agency level, supporting staff is assigned, but funding is not recurring, some lifecycle stages are supported
1/5	1	Funding is from local offices, budgeting effort is minimal, staffing is minimal
0/5	0	No process to obtain funding exists (Please explain)

Table 4: NGDA Maturity Level Totals for Funding.

Question 1.a	General Questions
1.a) To justify your response to Question 1, what is the primary funding source for your NGDA?	
Number of Responses	**Response Options**
1	**Directed appropriation(s) –** Funding signed into law by Congress for a specific program that supports this NGDA or the NGDA itself.
14	**Federal agency –** General lead agency budgetary funding for a specific program that supports this NGDA or the NGDA itself.
1	**Other –** (Please explain) • Staffing is minimal. There is no additional funding to support this dataset other than a salaried position.

Table 5: Primary Funding Source for NGDA Datasets in Theme.

Question 1.b	General Questions
1.b) To justify your response to Question 1, what is the secondary funding source for your NGDA?	
Number of Responses	**Response Options**
2	**Local government –** Agreements with local government(s) to provide funding for a specific program that supports this NGDA or the NGDA itself.
2	**Private sector –** Agreements with private sector company(ies) to provide funding for a specific program that supports this NGDA or the NGDA itself.

Table 6: Secondary Funding Source for NGDA Datasets in Theme.

Obtaining Data

Question 10 in the LMA identifies whether a process exists for obtaining data related to the NGDA and if so, what actions are performed to obtain data. There may be multiple ways data is obtained for an NGDA Dataset.

Question 10		Stage 3 - Obtain
Is there a process for obtaining data for this dataset?		
Maturity Level	**Number of Responses**	**Response Options**
5/5	15	Fully implemented including recurring assessments
4/5	1	Implementation well established
3/5	0	Implementation progressing
2/5	0	Developed, documented, and implementation started
1/5	0	Under development
0/5	0	No process exists

Table 7: Actions Performed to Obtain Data for NGDA Datasets in Theme.

Question 10.a	Stage 3 - Obtain
10.a) To justify your response to Question 10, what actions are performed to obtain data?	
Number of Responses	**Response Options**
0	Obtain data by purchasing
1	Obtain data by modifying, converting, or transforming data
2	Obtain data by sharing/exchanging
16	Obtain data by creating and/or collecting the data
2	Other – (Please explain) • CO-OPS has a process in place to solicit input from the user community. A CO-OPS program manager receives user requirements from NOAA's Office of Coast Survey's Regional Navigation Managers, as well as by directly engaging with our stakeholders. That program manager then formalizes those requirements in a MOU. CO-OPS also retrieves data from global sea level trend stations via the Permanent Service for Mean Sea Level (PSMSL) organization. PSMSL works with many other organizations and has been responsible for the collection, publication, analysis and interpretation of sea level data from the global network of tide gauges. (2 responses)

Table 8: Actions Performed to Obtain Data for NGDA Datasets in Theme.

Quality Assurance/Quality Control (QA/QC)

Question 15 in the LMA asks whether a process for quality assurance/quality control exists and the level of maturity of the process.

Question 15		Stage 5 - Maintain
Is there a quality assurance/quality control (QA/QC) process as part of this dataset's maintenance?		
Maturity Level	**Number of Responses**	**Response Options**
5/5	6	Fully implemented including recurring assessments
4/5	1	Implementation well established
3/5	1	Implementation progressing
2/5	0	Developed, documented, and implementation started
1/5	8	Under development
0/5	0	No process exists

Table 9: NGDA Maturity Level Totals for Quality Assurance/Quality Control Process.

Water - Oceans and Coasts Theme Strategic Goals and Objectives Progress Report

Introduction and Background

Each NGDA Theme has a Theme Strategic Plan to guide Theme development and management. It is developed by the Federal agencies with Theme leadership roles. Each Theme Strategic Plan describes the goals and objectives for the Theme and generally spans 3 to 5 years. It is assessed annually as needed for significant changes. In 2016-2017, the FGDC Steering Committee identified the additional priority for each Theme to develop a Theme Implementation Plan that identifies the actions and activities necessary to achieve the Theme's goals and objectives. The NGDA Themes' Strategic and associated Implementation Plans are available in Adobe PDF format via the respective Geoplatform.gov NGDA Theme Community pages (see Resource Links below).

Resource Links

Theme Strategic Plan: Water - Oceans and Coasts Theme Strategic Plan

Theme Implementation Plan: In progress

Progress in 2017

As noted above, Theme Strategic Plans identify goals and objectives for the Theme as they relate to Agency Strategic Plans. The Theme Implementation Plans further identify actions and activities that will be taken to support those goals and objectives. The Implementation Plans also include milestones, projected completion dates and performance indicators, and identify stakeholders and responsible parties. A summary of progress against the Theme Strategic Plan goals and objectives is provided as part of this overall Theme Summary Report. The following table shows the progress status made toward achieving the objectives during 2017. Status includes three categories: 'Not Started' for those activities that have not gotten underway; 'In Progress' for those activities underway which will continue into the next year; 'Complete' for the activities finished in this time frame. Additionally, if activities supporting the goal and objective are completed in the current year and will reoccur again on an annual basis, they are designated 'Recurring (completed for 2017)'.

Goals and Objectives undertaken during 2017	Status
Goal 1: Promote the collection and distribution of key coastal and ocean datasets.	
Objective 1.1. Ensure W-O&C NGDAs are compliant with all A-16 Portfolio Data Management requirements for metadata, data access, web services, archiving, and maturity assessments.	Recurring (completed for 2017)
Objective 1.2. Review scope of existing NGDAs and explore adding new NGDAs to the W-O&C Theme that fulfill authoritative framework data requirements for a national Marine NSDI.	Recurring (completed for 2017)
Objective 1.3. Coordinate with other A-16 Theme Leads on NGDAs that are applicable to the W-O&C Theme to enhance cross-theme efficiencies and benefits and improve data product design, management and utilization.	Recurring (completed for 2017)
Objective 1.4. Increase the overall availability of coastal and ocean datasets by encouraging authoritative data stewardship agencies to provide metadata and standards-compliant mapping services, as well as register content in Geoplatform.gov.	Recurring (completed for 2017)
Objective 1.5. Gather and evaluate requirements from a diverse community of end-users for critical coastal and ocean datasets that don't currently exist, or are unavailable, that could be future candidates for national data development initiatives [e.g, integrated habitat data, high-resolution coastal bathymetry].	In Progress
Objective 1.6. Support the Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM) in the development and implementation of a National Coastal Mapping Strategy, as directed by Congress in the Coastal and Ocean Mapping Integration Act of 2009.	In Progress
Goal 2: Promote tools that increase the usefulness of coastal and ocean geospatial data to address critical societal issues.	
Objective 2.1. Work in partnership with other groups, such as the regional ocean portal teams and Digital Coast, to identify inventories of existing tools and decision support systems for the coastal and marine environment.	Recurring (completed for 2017)
Objective 2.2. Seek out opportunities to promote high-value tools through a variety of outreach existing mechanisms (e.g., webinars, list servers, newsletter stories, conference presentations).	Recurring (completed for 2017)
Objective 2.3. Identify and promote examples where geospatial data and technologies are critical in addressing complex coastal issues [e.g, sea level rise simulations, off-shore alternative energy siting alternatives analysis, acidification, sustainable fisheries, safe navigation].	Recurring (completed for 2017)
Goal 3: Increase awareness of new geospatial data, collection systems, and innovative approaches to manage and share these resources.	
Objective 3.1. Provide leadership and participate in national-scale standards efforts in thematic areas relevant to the coastal and ocean geospatial community.	Recurring (completed for 2017)
Objective 3.2. Support the NOAA IOOS Office in providing new tools and forecasts to improve safety, enhance the economy, and protect the environment through a national-regional partnership for ocean observing systems.	Recurring (completed for 2017)

Objective 3.3. Participate with the NOAA IOOS office as they lead a nationwide program for modeling development, undersea glider operations, highfrequency radar, and animal telemetry to include providing resources to partner organizations through a competitive funding program.	Recurring (completed for 2017)
Objective 3.4. Identify coastal and ocean use cases that could potentially benefit from advances being made in the high-performance computing and Big Data fields.	Recurring (completed for 2017)
Objective 3.5. Partner with the academic community, private sector, and government research agencies in the development and testing of new geospatial technologies and approaches [e.g., Joint Airborne Lidar Bathymetry Technical Center of Expertise (JALBTCX), Center for Coastal and Ocean Mapping/Joint Hydrographic Center (CCOM/JHC)].	Not Started
Objective 3.6. Explore opportunities for shared services, for example cloud hosting or enterprise contracting vehicles, to improve efficiencies and coordination.	Not Started
Goal 4: Foster the growth of an informed and productive coastal and ocean geospatial community.	
Objective 4.1. Reconstitute the Marine and Coastal Spatial Data Subcommittee to provide a coordination focal point for communicating the diverse activities and developing shared requirements for the coastal and marine geospatial community [e.g, IWG-OCM, IOOS, MPPN, ICAN].	Not Started
Objective 4.2. Ensure close coordination with the wide range of regional ocean planning data portals and coastal atlas teams with an emphasis on sharing requirements and lessons learned on data, technology, decision support tools, and use cases.	Recurring (completed for 2017)
Objective 4.3. Leverage existing coordination opportunities such as the Coastal GeoTools Conference, Esri's Oceans Conference, and related events to promote the goals of and gather feedback on the W-O&C Theme and related activities.	Recurring (completed for 2017)
Objective 4.4. Seek out all opportunities and venues to expand interactions and solicit feedback from all sectors on the current state of the national Marine NSDI.	Recurring (completed for 2017)
Objective 4.5. Advertise and support peer-to-peer sharing of both information and opportunities, using the example of the NOAA Digital Coast's "Stories from the Field" and the "GeoZone Blog".	Recurring (completed for 2017)
Objective 4.6. Participate actively in applicable international organizations dealing with Marine NSDI and related topical areas [e.g, International Hydrographic Office [IHO], United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), Group on Earth Observations [GEO]].	Recurring (completed for 2017)

Table 10: 2017 Progress Summary for Theme Strategic Plan Goals and Objectives.